Syllabus - Physics 332

:: Junior Physics Lab ::
Spring 2022

Instructor Contact Information

Instructor: Prof. Frank Geurts
Office: Herman Brown Hall 236
Email: geurts@rice.edu
Office Hours: anytime my door is open, or by appointment. If needed remote office hours will be conducted via Zoom.

Course Objectives and Learning Outcomes

In this laboratory course students will learn to acquire and analyze data from several types of apparatus, and to present their results in a formal report.
By the end of this course, students have demonstrated the ability to

- Operate various types of standard and custom equipment as used in physics research.
- Acquire reliable data from pre-constructed apparatus.
- Use appropriate statistical and fitting methods to extract physical parameters, with uncertainties, from experimental data.
- Keep a lab logbook with a record of the procedures done and observations made.
- Present their results in a formal written report conforming to basic professional standards.

Texts and Materials

The Canvas course web page contains extensive resources for all the required exercises. There is no required textbook, although I highly recommend "Data Reduction and Error Analysis for the Physical Sciences" by P. R. Bevington and D. K. Robinson. Relevant text materials will be provided.
Apparatus for all the exercises will be available in the Physics Teaching Lab area in the Brockman Hall of Physics (BRK), room 120. You may obtain the door code from Dr. Geurts in Herman Brown Hall 236. The building is accessible outside of normal hours with a Rice ID.
This course is semi-self-paced, but you must read the relevant safety notes before beginning experimental work. Reviewing the experimental set up with the instructor will save you the time and wasted effort otherwise spent chasing parts or malfunctions. In the event that problems arise in the course of your work, get help from the instructor. You are not expected to solve all possible problems on your own. There will be one general group meeting in the first week (TBA). If you cannot make it at the scheduled time then contact Dr. Geurts for a reschedule.

Report Deadlines

The graded work consists of one homework and four formal reports, to be submitted electronically together with the associated logbooks on Canvas by the following dates:

- Online Homework deadline: Friday January 21, 2022 at 5pm
- First report: Friday February 11, 2022 at 5pm
- Second report: Friday March 4, 2022 at 5pm
- Third report: Friday April 1, 2022 at 5pm
- Fourth report: Friday April 22, 2022 at 5pm

The deadlines are hard deadlines and define a minimum pace for successful completion of the course. Note that the amount of equipment is limited, so it will be impossible for all students to do an experiment immediately before a deadline.

Grade Policies

Your grade in this course will be based on the homework assignment and the four formal technical reports, one for each experiment. At the standard rate of 3 hours per week in lab per credit-hour this implies that each project should represent a minimum of 18 hours of productive time spread over 3 weeks.

Students are encouraged to submit a draft of their report for comment. This should be done far enough in advance of the due date to allow time for revisions. Students are expected to maintain a logbook for each experiment in which they keep track of their work. A copy of their logbook should be provided as an appendix to the final submission of the formal report.

Early submissions are always welcome, while late work will be penalized at the rate of 5 percentage points per day late. Reports and problem sets will not be accepted more than 10 days after the due date or the end of finals, whichever is earlier. Homework and all four reports must be completed in order to pass the course.

Rice Honor Code

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

You may work with a partner if you wish, but it is not required. In any case, each student is expected to be familiar with all phases of the experiment and to produce an independent report of the results.

Disability Support Services

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Disability Support Services (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Syllabus Change Policy

This syllabus is only a guide for the course and is subject to change with advanced notice.